NMRC Researchers Present Groundbreaking Scrub Typhus Study at ASTMH Annual Meeting

Naval Medical Research Center
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Naval Medical Research Center (NMRC) scientists presented their groundbreaking scrub typhus study during the 2018 American Society of Tropical Medicine and Hygiene (ASTMH) Annual Meeting in New Orleans, Oct. 28 – Nov. 1.

The scientists worked with researchers at the National Taiwan University to determine Leptotrombidium mites have unique genes, distinctly different from disease carriers, such as the yellow fever mosquito (Aedes aegypti). The first of its kind study, held in Taiwan, sequenced two common scrub typhus carriers.

According to Dr. Chien-Chung Chao, research chemist, Infectious Diseases Directorate, NMRC, and a principal investigator on the study, warfighters are at a greater risk for infection due to the growth in geographic distribution of the disease.

“Scrub typhus has caused significant disruption in military operations throughout World War II, the Korean War, and the Vietnam War,” said Chao. “This study provides the molecular basis to investigate the transmission of Orientia tsutsugamushi from mites to mammalian hosts so that proper vector control protocol can be implemented to prevent any negative impact on deployed troops and future military operations.”

Scrub typhus, also known as Tsutsugamushi disease, is a mite-borne, fever-inducing illness, common in eastern and southern Asia, northern Australia, and far-eastern Russia. The study involved sequencing the DNA of engorged chigger-mites (larval form). The researchers concluded the average length of mRNA was shorter and number of exons was less in these chigger-mites than those of mosquitoes, which gives them a better understanding of chigger-mites and how to characterize their salivary secretions.

“It’s important to have a better understanding of this disease,” Chao said. “It recently expanded into the Middle East, South America, and Africa, and has been a causal factor in the development of encephalitis syndrome in India and sepsis in Cambodia.”

As the largest scientific organization of experts dedicated to reducing the burden of infectious disease, the ASTMH Annual Meeting draws more than 4,000 attendees from around the world and provides an opportunity for tropical medicine and global health professionals, military personnel, researchers, industry leaders, and academics to exchange scientific knowledge and information.

About Naval Medical Research Center

NMRC’s eight laboratories are engaged in a broad spectrum of activity from basic science in the laboratory to field studies at sites in austere and remote areas of the world to operational environments. In support of the Navy, Marine Corps, and joint U.S. warfighters, researchers study infectious diseases, biological warfare detection and defense, combat casualty care, environmental health concerns, aerospace and undersea medicine, medical modeling, simulation and operational mission support, and epidemiology and behavioral sciences.

NMRC and the laboratories deliver high-value, high-impact research products to support and protect today’s deployed warfighters. At the same time researchers are focused on the readiness and well-being of future forces.

To learn more about NMRC, visit https://www.med.navy.mil/sites/nmrc.